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ABSTRACT

The issues and problems confronted by a professor of literature when asked to teach a technical writing course for engineers are related in this paper. The first section of the paper explains how the professor was "recycled" from a teacher of literature to a professor of technical writing at his college. The second section describes some of the considerations involved in establishing and teaching the course, among them what text to use, what material to cover, how the students and engineering faculty would respond to the course, how to staff multiple sections of the course, and how to get students to see what they could write about after they had covered the basic techniques. The third section describes the "retraining" undertaken by the professor, which involved reading books on the subject, attending conferences, joining professional societies and reading professional journals, working as an editor for engineering professors, and auditing engineering courses. (FL)

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RECYCLING, RETHINKING, AND RETRAINING

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Last year at this time in Minneapolis, I attended these sessions in a state of some anxiety. After many years of teaching literature, I was confronted with teaching "technical writing". Because of some hobby interests in stereo and photographic equipment, I had some idea of what technical writing is; I had little confidence in my being able to teach someone else how to do it.

The title of my talk is "Recycling, Rethinking, and Retraining". I will try to follow the order it suggests. The purpose is to address issues and problems I have confronted in teaching technical writing this year, to discuss how I dealt with some of them, and to encourage those of you who may also be new to the field to see it as an interesting challenge and not as a punishing imposition.

RECYCLING

We are all aware of declining enrollments in literature courses, and we are aware of the consequences. Our department has tried to distribute specializations in literature equitably; the faculty member may not always get the preferred course nor get it as frequently as in some years past, but the courses are available. Part of the reason for that results from a requirement that we must teach on a regular rotation in the writing program--most often in freshman composition.

When the chairman came into my office last year, looking uneasy, and said that the enrollments in the short story courses had declined, I thought I knew what was coming--no more rotation each third semester--a steady diet of freshman composition. While I have great respect for people who can teach that

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course well and enjoy doing it, I have in recent years found the frustrations outweighing the satisfactions.

"Freshman composition was, of course, one option", he said, "but do you know anything about our new course, 'Written Communication for Engineers'?" No, I did not. I then discovered that our freshman composition director had convinced the College of Engineering to require this three-hour course for their juniors and seniors. There was one section offered the first semester, two the second in 1978. Both sections were being taught by graduate teaching assistants. The chairman knew there would be increasing enrollments as more engineering students faced the requirement. "Would I be interested in teaching the course?" The answer was clear to me immediately, but there was a political consideration. "I'll need a couple of days to think about it." When I next talked to him, I made my play, "I'll do it, but only if I can direct the course as well as teach it." His knowing smile appeared, "I hoped you'd say that," he said. Just who had finessed whom? Two days ago I did not know we had such a course; today I am "Director of Technical Writing". I had been recycled. At least I had been offered a choice--I think.

RETHINKING

A few questions about that choice became clear almost immediately. Where do I look for a text? What do I teach in the course? What do I know about engineering? How will technical students respond to having a "literature/ freshman composition" instructor teaching a course that depends upon their specializations for content? How will the engineering faculty respond? It was only after my first semester's experience that other kinds of questions came up. With whom do I staff the five sections we have to offer next semester? How do I get the student to see what he can write about after the basic techniques have been covered?

The answers to the first two questions were fairly easy. Someone had chosen the Mills and Walters text, Technical Writing, for the course. I quickly obtained a copy and read it. Now I had some idea for an approach to the course as a whole, and particularly to the first four writing assignments on such things as definition, description of a mechanism, and classification. It was a great relief to find that this was not so different in technique from what I knew from other composition courses. Finding appropriate assignments for longer papers toward the end of the semester was another story.

Gradually, I satisfied myself about the third question as well. If I put myself into the position of a vice president in charge of accounting, for example, I could emphasize the importance of accurate audience analysis--specifically, I could argue that, while I can be regarded as an intelligent reader of the student's work, I might have an educational background substantially different from the engineer's. The whole issue of audience analysis has never before been made clearer to me than it has in teaching this course. The students are often irritated by being required to make their work clear to someone outside their field; they often rationalize their failure to communicate by saying that "if you were an engineer you would understand it." My limited experience in editing parts of engineering dissertations and articles for engineering journals (which I will come back to under the "Retraining" section) convinced me otherwise. Please do not get the impression that all, or even most, engineering students are finally convinced that this is true. However, those students who are interested in writing well--and there are many--soon do understand, and when they do, their writing improves substantially.

The question about how the engineering faculty responds to our teaching the course is more difficult to answer. I have met various of them in quite different contexts, and their reactions are sometimes colored by the situation.

In general, those with whom I have talked about the course are in favor of it--though what one thinks we should emphasize is quite different from what another thinks. For example, one nuclear engineer thought we should get rid of their spelling and mechanical problems. One industrial engineer felt that letter writing should have a major emphasis; another wanted us to stress oral communication. Yet a different faculty member stressed the importance of formatting. The dean of engineering felt that the students wrote well at the end of the freshman year; they needed to have those skills reinforced in the junior or senior years. In short, we are expected to take care of all those problems confronted by their students. Surprisingly, this course has made me feel that given the right students, sufficiently motivated, we can come close to doing just that.

I think that I know what the engineering faculty and those industries hiring engineers know: the most desirable technical writer is an engineer who knows how to write. But I also know that faculty in other departments, while they may know effective writing within their specializations when they read it, do not know how to tell their writers what they can do to improve a bad piece of writing. This was made clear to me recently when I was asked by a faculty member in a different department to talk to his class about active and passive voice. His students were making a transition from an impersonal to a more personal style of report writing. As we talked further and after I looked at samples of student reports, it became clear that the problem was much larger than the passive voice. It had to do with the overall style and feeling generated in the papers. The major portion of the report was "analytical". In it the writer referred to herself as "the writer", "the author", "the intern". The last section was "personal observations". I talked to his class about voice first; then, I showed parts of the original report side-by-side with my suggested revision. The instructor was taking notes as well as

the students. They were as much surprised at the amount of pruning, without sacrificing meaning, as they were to discover the possibilities of being personal without being egotistical.

In case I seem to digress too far, let me suggest that we English teachers without technical backgrounds can render a genuine service to the technical student and faculty member. When they can see that, we are respected.

This observation leads back to another question posed earlier, "How do I staff multiple sections of this course?" There are two important considerations for me here, both of which caused problems. First, I felt very strongly that anyone asked to teach this course should have some interest in technical writing; that person need not have a technical background but must be interested in what these students write about. Satisfying that criterion was not as easy as it appeared. Many of the staff, in both the instructor and professorial ranks, candidly admitted that they were more interested in freshman composition topic material if they had to teach a writing course. Their candor helped. There is nothing more destructive to the course than a teacher who conveys a lack of interest in what many of them care deeply about. The second consideration caused me some embarrassment. I had recruited one assistant professor and one very good graduate student. We still had two sections to cover. Another graduate student came in to ask to teach the course. I was so surprised, and somewhat relieved, that someone wanted to do it that I immediately agreed. His motive was, at least in part, to make his credentials reflect experience in technical writing. After he left, my office mate observed that this student had only one semester left before graduation. He suggested, and I soon agreed, that the course should not be seen as a one-shot plum for graduate students. In consultation with our chairman, we decided that we should select only those GTA's who had at least three semesters' work remaining and who would agree to take a section of the course each of those semesters. We felt that the first semester's teaching

is basic breaking-in; students should not have a novice each semester. We felt, right or wrong, that it was an unwise political move as well. The College of Engineering might well feel that we were using their course just to keep our graduate students employed. I had the unhappy task of taking away a course that I had rashly assigned.

The final question at the beginning of this section, "How do I get the student to see what he can write about after the basic techniques have been covered?" was also very difficult for me during the first semester. I blithely assumed that, as juniors and seniors, these students would be involved in research projects, or with longer laboratory reports in their engineering courses. If I could believe them, many students were not. I remain skeptical about that, but it was true that many had trouble originating a longer report topic. For some, their past work experience provided an ideal report situation. For others, their associations with engineering friends or relatives allowed them to originate topics. For many, there seemed no hope. Finally solutions appeared. Some took on research papers; some patched together a series of lab reports or designs; some others talked to their engineering professors and got ideas. This was a difficulty only for the first semester. After the writing teacher files these formal reports, he has some reference material and some additional possibilities to offer the student. No doubt getting sample reports from government and industry would also help, but my students seem to feel much more comfortable referring to work done by their peers.

RETRAINING

After being recycled and being forced to rethink my classroom approach, I felt very strongly that I needed some retraining. Perhaps the most expeditious way for me to talk about this is to follow a chronological order.

First, I ordered a number of text books on technical writing. These were of obvious help in presenting approaches in culling examples.

Second, I found that CCCC had sessions on technical writing. That came as a surprise. Among the benefits from the 1979 meeting was syllabus and course material from one of the speakers. That material provided useful direction for my first semester. I also received bibliographical material on teaching techniques, information about professional societies, information about seminars and conferences on technical writing. I was urged to talk to technical writers to find out what they do. I was also encouraged to try to find work in technical editing.

After joining some of the societies and reading articles, journals, and books in the area, I sought engineering editing. One of my acquaintances in engineering mentioned me to one of her colleagues. I edited a few journal articles for him and parts of two dissertations for his degree candidates (for pay as well as for experience). This was one of the early satisfactions. It seemed very strange that I could read material most of whose content I could not understand and still be able to say, "This sentence doesn't make sense," or "This paragraph should be moved". I was struck by the generally high quality of the writing and by the tight logical organization. The engineering professor seemed pleased, and after the third article he told me that each of them had already been edited once by his former editor. I bring this up not to inflate my own ego but to suggest that you people wholly new to the field know more than you may think you do about effective technical writing.

Last summer I attended the conference, "Teaching Technical and Professional Communication: An Introduction to Teaching Written Communication for Engineers, Scientists and other Professionals," at the University of Michigan.

The conference was valuable in part because of the quality and variety of instruction and in part because of the opportunity to talk with many people from different universities and from different backgrounds about their teaching experiences. There are several of these conferences in different parts of the country this summer. I can speak only of my own experience, but if the rest are comparable in quality, you should find them extremely beneficial.

In the last two semesters I have audited two computer science courses and an engineering course. While I have indicated that an English teacher with no technical training can do a creditable job in the technical writing course, it became clear that those professors who are heavily involved in advanced level courses, who consult in industry, and who work as technical writers are most frequently individuals who may have advanced degrees in English but who, when asked directly, will say that they had at least undergraduate minors in technical areas or had extensive technical training in the military. I felt that my confidence would improve and my credibility would be enhanced if I were more familiar with the kinds of problems my students work with in their courses. It has been a great help in the classroom to be able to understand some technical terminology and some technical problem-solving techniques.

CONCLUSION

There have been problems large and small with my course this past year, but there have also been rewards greater than I have had in any other writing courses I have taught.

Overall, the students are intelligent. They all have the ability to pass the course, and many have the ability to teach me through well-written papers. It is a blessing to find student writing that is interesting, capable of excellence through good revision, and concerned with addressing the whole difficult process of effective communication.

Conferences are more often than not rewarding because these students can see where their papers went wrong and can often then see how to make them better. How different this is from dealing with a freshman who has ineffectually argued for or against "Abortion on Demand" or "Women Should be Drafted into the Military" or "College Grading Systems Should be Abolished" in five-hundred words and cannot seem to understand why her argument has failed to convert you to her stand.